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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

de JONG et al.

Application No: 09/275,727

Filed: March 24, 1999

For: STORAGE AREA NETWORK
ADMINISTRATION

) Attorney Docket No: ADAPP091A
)
) Examiner: Tran, Mylinh T.
)
) Group Art Unit: 2179
)
) Date: April 4, 2005
)
)
)

CERTIFICATE OF MAILING

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Signed: _____

Kenneth D. Wright

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION -- 37 CFR 192)

Mail Stop: Appeal Brief-Patents

Commissioner for Patents
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is in furtherance of the Notice of Appeal filed in this case on February 3, 2005. Because April 3, 2005, fell on a Sunday, the due date for this Appeal Brief is April 4, 2005.

This application is on behalf of:

☐ Small Entity ☒ Large Entity

Pursuant to 37 CFR 1.17(f), the fee for filing the Appeal Brief is:

☐ \$165.00 (Small Entity) ☐ \$330.00 (Large Entity)

☒ Appeal Brief Fee has already been paid. Prosecution was re-opened by Examiner in response to the Appeal Brief, filed December 31, 2003.

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136 apply:

☐ Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

<u>Months</u>	<u>Large Entity</u>	<u>Small Entity</u>
<input type="checkbox"/> one	\$110.00	\$55.00
<input type="checkbox"/> two	\$400.00	\$200.00
<input type="checkbox"/> three	\$920.00	\$460.00
<input type="checkbox"/> four	\$1,440.00	\$720.00

If an additional extension of time is required, please consider this a petition therefor.

☐ An extension for __ months has already been secured and the fee paid therefor of \$ is deducted from the total fee due for the total months of extension now requested.

☒ Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that Applicant has inadvertently overlooked the need for a petition and fee for extension of time.


Total Fees Due:

Notice of Appeal Fee	\$
Extension Fee (if any)	\$
Total Fee Due	\$0

☐ Enclosed is Check No. _____ in the amount of \$_____.

☒ Applicants believe that no fees are due in connection with the filing of this Appeal Brief. However, the Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-0850, (Order No. ADAPP091A). One additional copy of this transmittal is enclosed for fee processing.

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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

EX PARTE de JONG et al.

Application for Patent

Filed March 24, 1999

Application No. 09/275,727

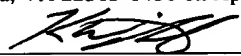
FOR:

STORAGE AREA NETWORK ADMINISTRATION

APPEAL BRIEF

CERTIFICATE OF MAILING

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Signed: 
Kenneth D. Wright

**MARTINE PENILLA & GENCARELLA, LLP
Attorneys for Applicants**

TABLE OF CONTENTS

	<u>Page No.</u>
I. REAL PARTY IN INTEREST	3
II. RELATED APPEALS AND INTERFERENCES.....	3
III. STATUS OF THE CLAIMS	3
IV. STATUS OF THE AMENDMENTS	3
V. SUMMARY OF THE INVENTION	3
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.....	12
VII. ARGUMENTS.....	12
A. Rejections of Claims 1-17 under 35 U.S.C. 103(a)	12
VIII. CLAIMS APPENDIX.....	19
IX. EVIDENCE APPENDIX.....	23
X. RELATED PROCEEDINGS APPENDIX	23

I. REAL PARTY IN INTEREST

The real party in interest is Adaptec, Inc., the assignee of the present application.

II. RELATED APPEALS AND INTERFERENCES

A Notice of Appeal was filed on November 3, 2003, and a corresponding Appeal Brief was filed on December 31, 2003. In response to the Appeal Brief filed on December 31, 2003, the examiner reopened prosecution on March 29, 2004, with a non-final Office Action including new grounds of rejection. The Applicants proceeded with prosecution by responding to the March 29, 2004, Office Action.

III. STATUS OF THE CLAIMS

A total of 24 claims were presented during prosecution of this application. Claims 1-24 were subject to a restriction requirement (grouped as Claims 1-21 and Claims 22-24). Subsequently, Claims 1-21 were elected without traverse, and Claims 22-24 were cancelled. The Applicants also cancelled Claim 18-21 during prosecution. The Applicants appeal rejected Claims 1-17.

IV. STATUS OF THE AMENDMENTS

Subsequent to the Final Office Action dated November 3, 2004, a Request for Reconsideration was filed January 3, 2005. Arguments included in this Request for Reconsideration were not considered persuasive by the examiner, thus leaving rejected Claims 1-17.

V. SUMMARY OF THE INVENTION

Independent claim 1 defines a storage area network management and configuration system ("system"). The system includes an enterprise network (102) that includes a

plurality of computer systems. The plurality of computer systems within the enterprise network (102) includes server computer systems (104a-104d) and client computer systems (108). The server computer systems (104a-104d) include a server component (p. 12, lines 18-22), and the client computer systems (108) include a client component (p. 12, lines 5-14). The system also includes a storage enclosure (106a-106g) that is connected to a server computer system (104a-104d) within the enterprise network (102). The storage enclosure (106a-106g) is configured to have a RAID array of disks (p. 12, lines 4-5). The system further includes a graphical user interface (GUI) (150) provided by the client component at a client computer system (p. 14, lines 20-23) within the enterprise network (102). The GUI (150) provides a graphical representation of the enterprise network (102) and icon links to configuration tools for selecting and structurally defining the RAID array of disks of the storage enclosure (106a-106g) connected to the server computer system (104a-104d). Thus, the GUI (150) provided at the client computer system (108) enables selection and structural definition of the RAID array of disks within the storage enclosure (106a-106g) connected to the server computer system (104a-104d), without having to locally interact with the server computer system (104a-104d).

Independent claim 3 defines a storage area network management and configuration system as defined in claim 1. However, claim 3 additional features of the GUI (150) provided at the client computer system (108) to enable selection and structural definition of the storage enclosure (106a-106g) connected to the server computer system (104a-104d). Claim 3 requires that the GUI (150) includes an array builder link (156) that, when selected, provides selection tabs (156b and 156c) to allow array building to be performed from either an array template or from scratch. As with claim 1, claim 3 requires that the user be able to physically build the RAID array of disks without having to locally interact with the server computer system (104a-104d).

In one embodiment, the present invention is implemented as a combination of hardware and software that allows users to easily configure, manage, and monitor RAID-based disk arrays in an enterprise. (p. 10, lines 8-11) As used herein, an enterprise may be represented as an example company having a number of server computer systems and RAID-based disk arrays resident at selected ones of the number of server computer systems. (p. 10, lines 11-13) In following, implementation of the present invention can be based on a client-server model. (p. 11, lines 4-7)

The storage area network management and configuration system of the present invention includes a variety of features for allowing system administrators to remotely configure and monitor RAID arrays, controllers, and associated subsystem components. (p. 11, lines 4-7) In one embodiment, there can be multiple administration systems on an enterprise network backbone, wherein each administration system can see all other servers, and each server can have multiple storage enclosures. (p. 11, lines 7-9) The client software (i.e., client component), when loaded onto a computer of the enterprise, enables a user to administer storage enclosures connected to servers having the server software (i.e., server component). (p. 11, lines 9-11)

Figure AB-1 illustrates a computer block diagram 100 of an enterprise network 102, in accordance with one embodiment of the present invention. (Fig. 1A) As shown, the enterprise network 102 may have a plurality of server computer systems 104a through 104d. (p. 11, lines 13-14) Typically, each of the server computer systems 104a-104d, may serve to provide access to groups of users in the enterprise and to share data stored on those computer systems (or clusters). (p. 11, lines 15-17) In this embodiment, the server computer systems 104a-104d may have one or more storage enclosures 106a through 106g which serve to house a plurality of hard disk drives. (p. 11, lines 19-21) In one embodiment, the storage enclosures 106a-106g are RAID-based disk arrays. (p. 11, lines

21-22) Additionally, a client computer 108 is shown connected to the enterprise network 102. (p. 12, lines 1-2)

In one embodiment, software used to administer the storage enclosures 106a-106g (e.g., RAID-based disk arrays) will be in the form of a server component and a client component. (p. 12, lines 4-5) For instance, if the storage administrator desires to configure, monitor, or service one of the storage enclosures 106a-106g connected to one of the server computer systems 104a-104d on the enterprise network 102, the administrator can simply log on to any computer having the client component. (p. 12, lines 5-8) Thus, the administrator can administer any of the storage enclosures 106a-106g in the enterprise network 102 via any computer having the client component software. (p. 12, lines 9-11) With the present invention, the client component allows the administrator to log-on to the enterprise network through an easy-to-use GUI and administer any of the storage enclosures. (p. 12, lines 12-14)

The server component of the software allows the server computer systems 104a-104d to intelligently communicate with the various storage enclosures 106a-106g connected thereto. (p. 12, lines 18-20) By way of example, server computer 104b will have the server component which will enable it to share and make accessible the storage enclosures 106b-106d to the enterprise network. (p. 12, lines 20-22) Accordingly, the system administrator can now log-on to any computer having the client component to gain access to the enterprise network for purposes of monitoring, configuring, and servicing any of the storage enclosures 106b-106d, including any of the individual hard drives contained within the storage enclosures 106b-106d. (p. 13, lines 2-5) In more general terms, the GUI provided by the client component of the present invention will enable a user to easily modify any of the disk arrays connected to the enterprise network, monitor all of the storage enclosures and selected disks connected to the storage enclosures, build specific

RAID array configurations, and be alerted by an event notifier of when a problem is detected with a particular storage enclosure or a particular disk that is within a particular storage enclosure. (p. 13, lines 6-11)

Figure AB-2 illustrates an exemplary GUI 150 that can be presented to a user when administering storage enclosures over the enterprise network from a computer having the client component. (Fig. 1C and p. 14, lines 20-23) The GUI 150 provides the user with immediate access to an overview of the functionality provided by the storage administration system. (p. 15, lines 1-3) Thus, the GUI 150 provides a user with quick and visually salient access to basic functional tools and links. (p. 15, lines 3-4) In this embodiment, the functional tools include an Array Modifier 152, an Enterprise Monitor 154, an Array Builder 156, and an Event Notifier 158. (p. 15, lines 4-6) Also provided is a link to view the enterprise 160, a link to list Unconfigured Hardware 162, and a link to Templates 164 that can be used to quickly configure hardware. (p. 15, lines 6-8)

Figure AB-3 illustrates an Array Builder window 156a that is presented to the user upon selecting the Array Builder 156. (Fig. 26 and p. 15, lines 21-22) The Array Builder window 156a provides selection tabs 156b and 156c to allow array building from an array template or from scratch, respectively. (Fig. 26) Templates provide a faster and simpler way for users to build an array. (p. 17, lines 8-10) The template is used to specify all parameters and settings that are required to build a RAID array, with the exception of selecting the actual disks to use in the array. (p. 17, lines 3-5) The top container in the Array Builder window 156a provides the user with a list of unconfigured subsystems. (p. 23, lines 17-18) The bottom container in the Array Builder window 156a lists available templates. (p. 23, lines 18-19) When the array is built from the template, a template icon can simply be dragged onto array hardware that is selected to receive the configuration. (p. 17, lines 10-14) Once the user chooses a template from the list of templates in the Array

Builder window 156a, the user is presented with a confirmation dialog that allows for selection of the drives to be used in the array and initiation of the build process. (p. 17, lines 14-16) As alternative to building an array from an array template, the Array Builder window 156a also provides a Build-from-Scratch option 156c for more experienced users. (p. 23, lines 21-22) The Build-from-Scratch option allows the user to build an array for the selected subsystem “manually” by specifying each parameter. (p. 23, line 22 through p. 24, line 1)

It should be appreciated that the above discussion represents only a summary of the present invention. A more in-depth discussion of the present invention, particularly the various features of the GUI provided by the client component, are provided in the Detailed Description section of the specification.

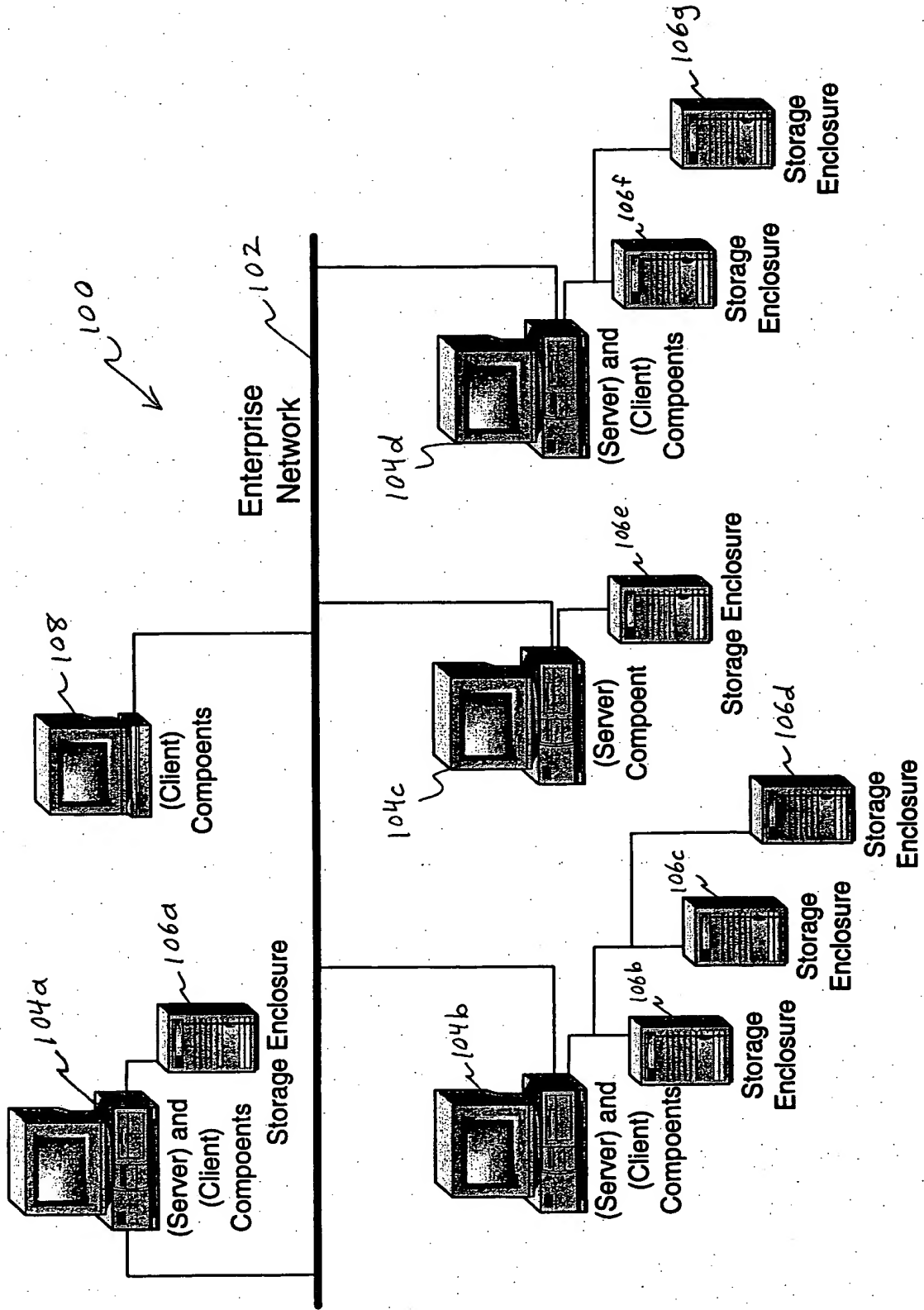


FIG. AB-1

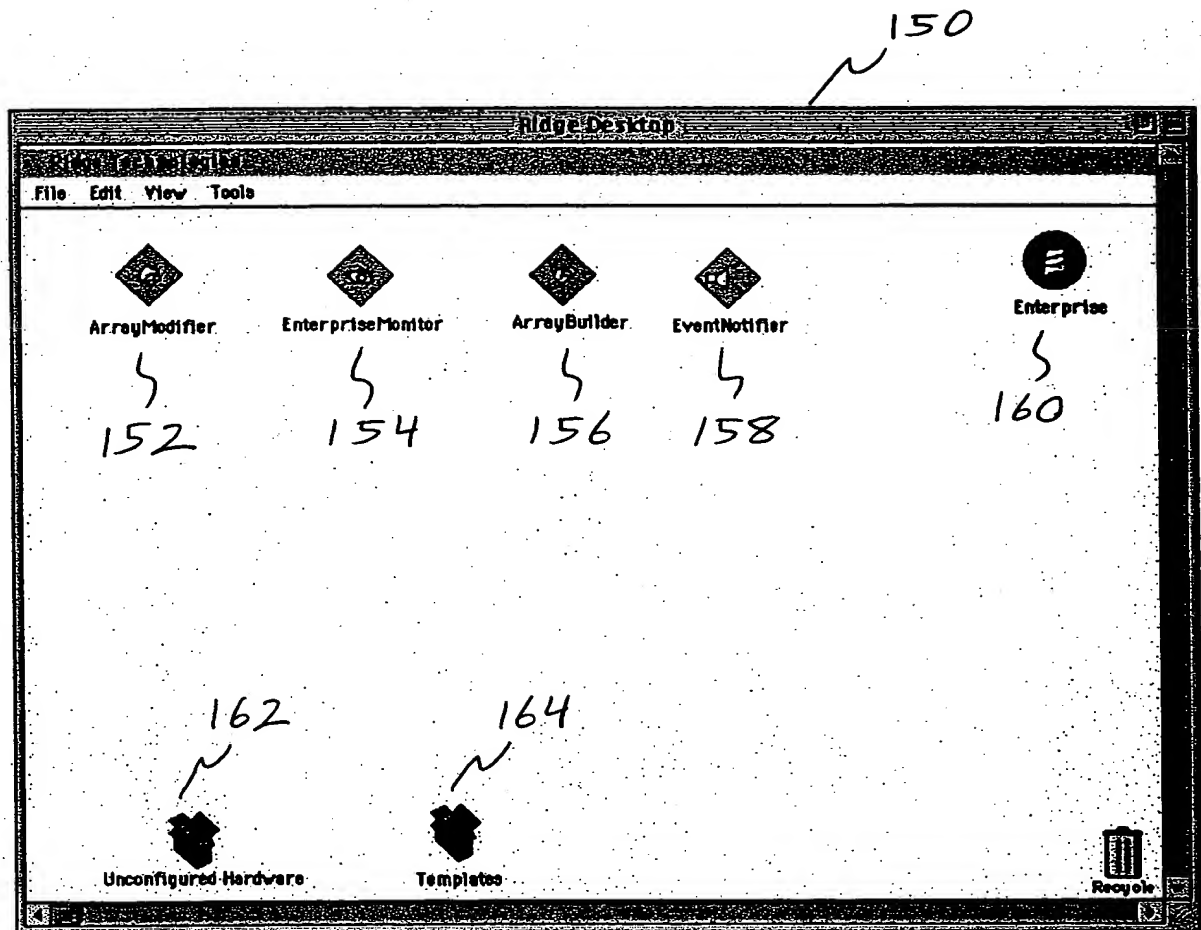


FIG. AB-2

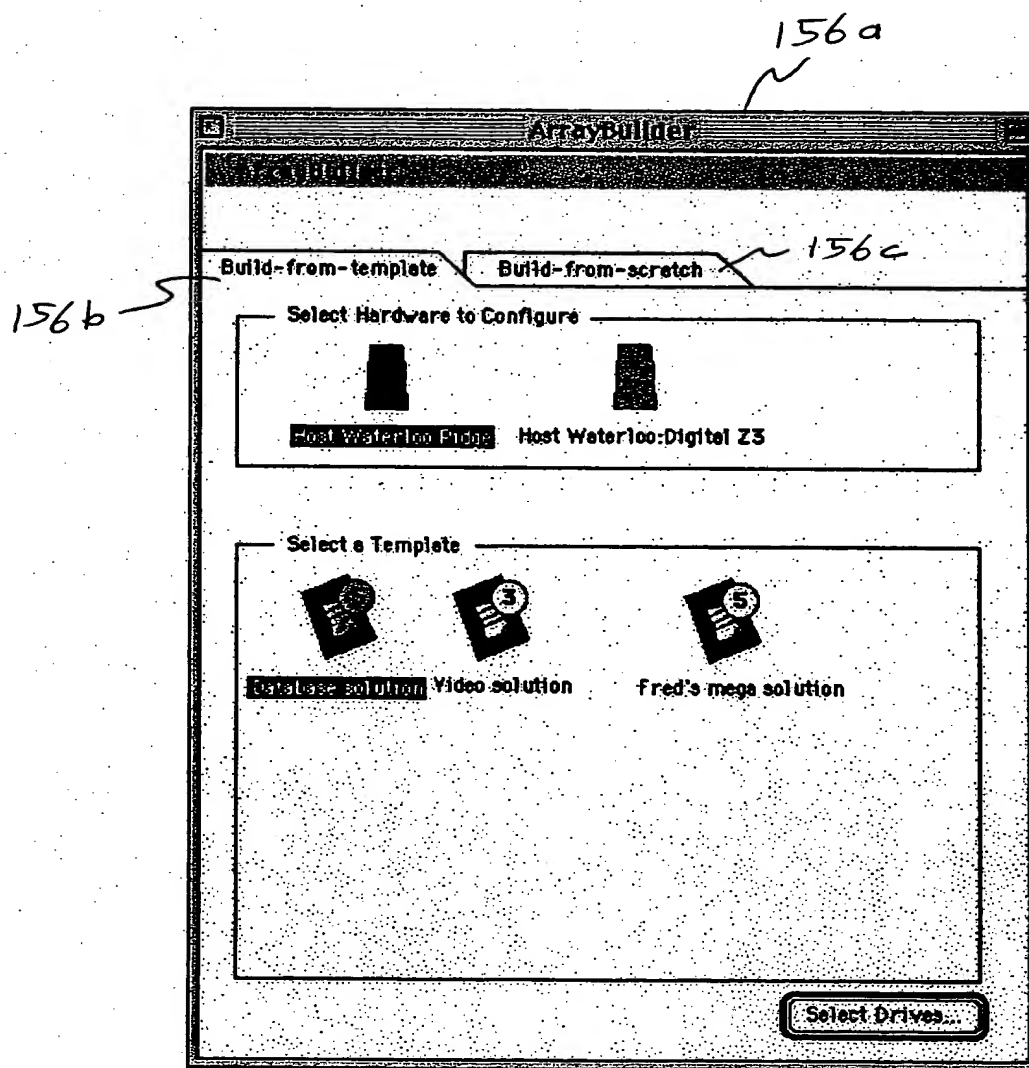


FIG. AB-3

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Axberg et al. ("Axberg" hereafter) (U.S. Patent No. 6,009,466) in view of Ofer et al. ("Ofer" hereafter) (U.S. Patent No. 5,890,204).

VII. ARGUMENTS

A. Rejections of Claims 1-17 under 35 U.S.C. 103(a)

Rejections of Claims 1-2 and 6-17 under 35 U.S.C. 103(a)

Claim 1 represents the broadest independent claim of Claims 1-2 and 6-17. Since Claims 1-2 and 6-17 will stand or fall together, the Applicants choose to argue the patentability of Claim 1.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

With respect to claim 1, the combination of Axberg and Ofer fails to teach at least the following features:

"a graphical user interface provided by the client component at a client computer system."

The Examiner has admitted that Axberg does not teach the graphical user interface provided by the client component at the client computer system. The Applicants agree with this admission by the Examiner. However, the Examiner has asserted that Ofer teaches the graphical user interface provided by the client component at the client computer system. The Applicants disagree with this assertion by the Examiner.

Ofer (column 2, lines 26-30) teaches that a storage controller (Ofer item 12) is connected to an array of disk storage devices (Ofer item 14). Ofer (column 2, lines 30-33) further teaches that the storage controller (Ofer item 12) is connected to a host computer (Ofer item 20). Claim 1 of the present invention requires "a storage enclosure connected to a server computer system having the server component, the storage enclosure having a RAID array of disks." Because the host computer (Ofer item 20) of Ofer is required to be connected to the storage controller (Ofer item 12), the Examiner has asserted that the server computer system of Claim 1 of the present invention is represented by the host computer (Ofer item 20) of Ofer. However, the Examiner has been silent with regard to Ofer's outward teaching that the graphical user interface of Ofer is provided at the host computer (Ofer item 20). For example, Ofer (column 1, lines 59-60) states that the graphical user interface is presented to a user at the host computer (Ofer item 20). Additionally, Ofer (column 4, lines 53-58) teaches that the graphical user interface is used at the host computer (Ofer item 20).

In contrast to the teachings of Ofer, Claim 1 of the present invention requires that a graphical user interface be provided by the client component at a client computer system, as opposed to being provided by the server computer system. Notwithstanding the fact that the graphical user interface of Ofer is not equivalent to the graphical user interface of the present invention, the above-mentioned teachings of Ofer would lead one skilled in the art to understand that the graphical user interface is to be provided by the server computer system to which the storage enclosure is connected. Thus, the above-mentioned teachings of Ofer are diametrically opposed to the requirements of Claim 1 of the present invention regarding the graphical user interface being provided by the client component at the client computer system.

In additional to the foregoing, the combination of Axberg and Ofer fails to teach at least the following features of Claim 1:

"the graphical user interface being defined to enable a user to physically build and modify the RAID array of disks of the storage enclosure connected to the server computer system from the client computer system without requiring the user to locally interact with the server computer system."

Axberg does not include any teachings regarding the physical building and modification of a RAID array of disks. The teachings of Axberg are merely directed to a tool for PLANNING a configuration of a storage network. The teachings of Axberg with regard to planning the configuration of the storage network are apparent throughout the disclosure of Axberg, including within the following excerpts:

- "In operation, the storage management program of the preferred embodiment is used to interactively plan a storage network configuration."
(Axberg column 10, lines 62-64)
- "Storage management program 331 may offer the option to save/print a configuration in various forms." (Axberg column 15, lines 49-50)
- "The configuration planning function of the storage network management program will typically be performed before a storage network is constructed, i.e., physically connected together." (Axberg column 7, lines 14-24)
- "The host system 110 may be an isolated system, not connected to any network, or it may be connected to an information processing network via medium 115 as shown in Fig. 1, but without a storage network yet connected." (Axberg column 7, lines 14-24)

Because Axberg is silent with regard to physically building and modifying the RAID array of disks, it is not reasonable to conclude that Axberg teaches any portion of the Claim 1 feature requiring "the graphical user interface being defined to enable a user to physically build and modify the RAID array of disks of the storage enclosure connected to the server computer system from the client computer system without requiring the user to locally interact with the server computer system."

Additionally, as previously discussed, Ofer does not teach that the graphical user interface is provided at the client computer system. According to Ofer, use of the graphical user interface to cause a change in the storage enclosure must be performed at the server computer system, because the graphical user interface is only provided at the server computer system. Therefore, in addition to Axberg, Ofer also fails to teach a graphical user interface that enables a user to physically build or modify a storage enclosure connected to a server computer, from a client computer system, without requiring local user interaction with the server computer system.

In view of the foregoing, the combination of Axberg and Ofer as relied upon by the Examiner fails to teach each and feature of Claim 1, as required to support a rejection under 35 U.S.C. 103(a) based on prima facie obviousness.

In further view of the foregoing, it is apparent that the Examiner has selectively addressed features of Claim 1 without considering the combined elements and limitations of Claim 1 as a whole. In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983). Based on the arguments provided above, the Applicants submit that the Examiner has not

considered at least the following features of Claim 1 as a whole when evaluating the claimed invention against the cited art of record:

"a graphical user interface provided by the client component at a client computer system," and

"the graphical user interface being defined to enable a user to physically build and modify the RAID array of disks of the storage enclosure connected to the server computer system from the client computer system without requiring the user to locally interact with the server computer system."

Based on the arguments above, the Applicants submit that Claim 1 is patentable over the combined teachings of Axberg and Ofer. Therefore, the Board of Appeals and Interferences is respectfully requested to overturn the Examiner's rejection of Claim 1. Additionally, because each of Claims 2 and 6-17 ultimately depends from Claim 1, the Board of Appeals and Interferences is also respectfully requested to overturn the rejections of Claims 2 and 6-17.

Rejections of Claims 3-5 under 35 U.S.C. 103(a)

Claim 3 represents the broadest independent claim of Claims 3-5. Since Claims 3-5 will stand or fall together, the Applicants choose to argue the patentability of Claim 3.

With regard to features of claim 3 that are similar to features of claim 1, the combination of Axberg and Ofer fails to teach the features of claim 3 for the same reasons previously discussed with respect to the similar feature of claim 1. Furthermore, claim 3 includes the following features which are not taught by the combination of Axberg and Ofer:

"the graphical user interface being defined to provide functional tools to enable a user of the client computer system to physically build a RAID array of disks

either from scratch or through application of a RAID building template without requiring the user to locally interact with the server computer system."

The Applicants submit that neither Axberg nor Ofer teach a functional tool (provided by a graphical user interface) that enables physical building of a RAID array of disks either from scratch or through application of a RAID building template, particularly without requiring the user to locally interact with the server computer system. The Examiner has relied upon Ofer (column 1, lines 56-67) to teach the feature of Claim 2 identified above. However, as previously discussed with respect to Claim 1, Ofer teaches that use of the graphical user interface to cause a change in the storage enclosure must be performed at the server computer system to which the storage enclosure is connected. However, the above-cited feature of Claim 3 clearly states that the graphical user interface of the present invention provides functional tools to enable a user of the client computer system to physically build a RAID array of disks ... without requiring the user to locally interact with the server computer system.

In view of the foregoing, the combination of Axberg and Ofer as relied upon by the Examiner fails to teach each and feature of Claim 3, as required to support a rejection under 35 U.S.C. 103(a) based on prima facie obviousness.

The Applicants submit that Claim 3 is patentable over the combined teachings of Axberg and Ofer. Therefore, the Board of Appeals and Interferences is respectfully requested to overturn the Examiner's rejection of Claim 3. Additionally, because each of Claims 4-5 ultimately depends from Claim 3, the Board of Appeals and Interferences is also respectfully requested to overturn the rejections of Claims 4-5.

In sum, the Applicants submit that the rejections of Claims 1-17 under 35 U.S.C. §103(a) are in error, and respectfully request that the Board of Appeals and Interferences reverse the Examiner's rejections of the claims on appeal.

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VIII. CLAIMS APPENDIX

1. A storage area network management and configuration system, comprising:
an enterprise network including a plurality of computer systems, the plurality of computer systems including server computer systems and client computer systems, wherein the server computer systems include a server component and the client computer systems include a client component;

a storage enclosure connected to a server computer system having the server component, the storage enclosure having a RAID array of disks; and

a graphical user interface provided by the client component at a client computer system, the graphical user interface being defined to enable a user to physically build and modify the RAID array of disks of the storage enclosure connected to the server computer system from the client computer system without requiring the user to locally interact with the server computer system.

2. A storage area network management and configuration system as recited in claim 1, further comprising:

an array modifier tool configured to allow online modification of a capacity and cache parameters of a disk array.

3. A storage area network management and configuration system, comprising:
an enterprise network including a plurality of computer systems, the plurality of computer systems including server computer systems and client computer systems, wherein the server computer systems include a server component and the client computer systems include a client component;

a storage enclosure connected to a server computer system having the server component; and

a graphical user interface provided by the client component at a client computer system, the graphical user interface being defined to provide functional tools to enable a user of the client computer system to physically build a RAID array of disks either from scratch or through application of a RAID building template without requiring the user to locally interact with the server computer system.

4. A storage area network management and configuration system as recited in claim 3, wherein the functional tool to enable the user of the client computer system to build the RAID array of disks through application of a RAID building template, comprises:

a first container defined to enable selection of disks to be used in building the RAID array of disks, wherein the disks reside within a storage enclosure present within the enterprise network;

a second container defined to enable selection of the RAID building template that contains a RAID configuration scheme that is optimally selected for a particular storage application; and

code for dragging the selected RAID building template, that is in the form of an icon, over the selected disks or dragging the selected disks over the selected RAID building template, the dragging is configured to automatically apply the RAID configuration scheme.

5. A storage area network management and configuration system as recited in claim 4, wherein the RAID configuration scheme includes,

- a RAID level;
- a number of drives in the selected hardware;
- a number of spare drives;
- a stripe size; and
- an array address.

6. A storage area network management and configuration system as recited in claim 1, further comprising:

an enterprise monitor tool configured to provide a window wherein monitoring settings can be set.

7. A storage area network management and configuration system as recited in claim 6, wherein the monitoring settings includes,

- a failure indicator; and
- a disk capacity indicator.

8. A storage area network management and configuration system as recited in claim 7, wherein the monitoring settings further include,

- a temperature indicator for the storage enclosure;
- a battery health indicator; and
- a power supply health indicator.

9. A storage area network management and configuration system as recited in claim 6, further comprising:

an enterprise monitor window for providing a quick view of selected storage enclosure parameters.

10. A storage area network management and configuration system as recited in claim 1, further comprising:

an event notifier configured to provide customizable failure and status notifications associated with storage enclosures within the enterprise network.

11. A storage area network management and configuration system as recited in claim 10, wherein the customizable failure and status notifications include,

setting user notification profiles, the profiles include communication information.

12. A storage area network management and configuration system as recited in claim 11, wherein the communication information includes e-mail information and pager information.

13. A storage area network management and configuration system as recited in claim 1, further comprising:

an enterprise icon that when selected allows viewing of the enterprise network that includes the plurality of computer systems and associated storage enclosures that are connected to server computer systems having the server component.

14. A storage area network management and configuration system as recited in claim 13, wherein the viewing of the enterprise network can be of physical devices or

logical devices, and the physical devices and the logical devices can be displayed in one of a tree view and a quick view.

15. A storage area network management and configuration system as recited in claim 14, further comprising:

a graphical failure representation provided for selected drives of the storage enclosure, the graphical failure representation being configured to be displayed on a failed drive when the failed drive is in a viewable setting and on the storage enclosure when the failed drive is not in the viewable setting.

16. A storage area network management and configuration system as recited in claim 1, wherein the client component provides a user administrator the management and configuration control to the storage enclosure of the enterprise network.

17. A storage area network management and configuration system as recited in claim 1, wherein the enterprise network can include a plurality of storage enclosures that are connected to selected computer systems that are part of the enterprise network and that have the server component.

IX. EVIDENCE APPENDIX

There is currently no evidence entered and relied upon in this Appeal.

X. RELATED PROCEEDINGS APPENDIX

There are currently no decisions rendered by a court or the Board in any proceeding identified in the Related Appeals and Interferences section.